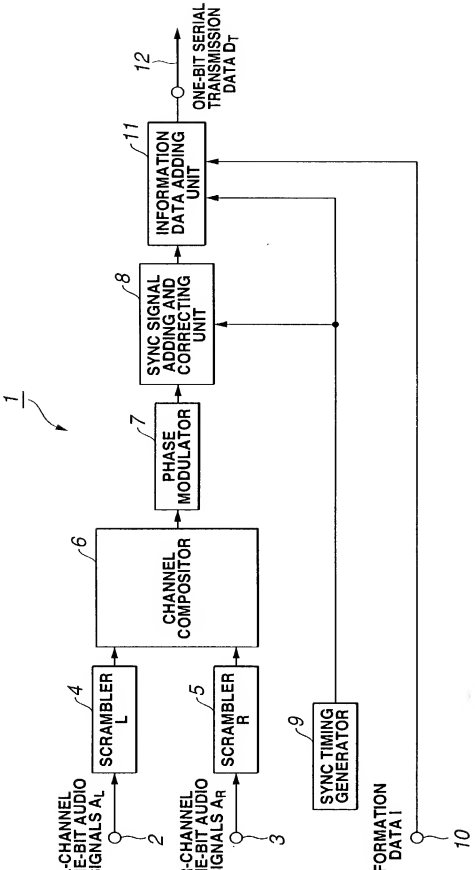
1
L-CHANNEL ONE-BIT AUDIO SIGNALS A_L
2
R-CHANNEL ONE-BIT AUDIO SIGNALS A_R
3
4
SCRAMBLER L
5
SCRAMBLER R
6
CHANNEL COMPOSITOR
7
PHASE MODULATOR
8
SYNC SIGNAL ADDING AND CORRECTING UNIT
9
SYNC TIMING GENERATOR
10
INFORMATION DATA I
11
INFORMATION DATA ADDING UNIT
12
ONE-BIT SERIAL TRANSMISSION DATA D_T

FIG.1

L-CHANNEL ONE-BIT AUDIO SIGNAL DATA
L1
L2
L3
L4
R-CHANNEL ONE-BIT AUDIO SIGNAL DATA
R1
R2
R3
R4
STEREO ONE-BIT AUDIO SIGNAL DATA
L1
R1
L2
R2
L3
R3
L4
R4
PHASE-MODULATED ONE-BIT AUDIO SIGNAL DATA
L1
L1
R1
R1
L2
L2
R2
R2
L3
L3
R3
R3
L4
L4
R4
R4
1 1 1 1
64 STEREO SAMPLES
PHASE MODULATION REGION
SYNC PATTERN REGION
1
2
13 STEREO SAMPLES SYNC CORRECTION REGION
48 STEREO SAMPLES INFORMATION DATA INSERTION REGION
ONE FRAME

FIG.2

1
2
13 STEREO SAMPLES SYNC CORRECTION REGION
48 STEREO SAMPLES INFORMATION DATA INSERTION REGION
PHASE MODULATION REGION
L0 L0 R0 R0
SYNC PATTERN REGION
L1 R1 L2 R2
NUMBER OF INCREASED OR DECREASED [1]S
NUMBER OF INCREASED OR DECREASED [1]S
L1 R1 L2 R2
(-1)
(-2)
(+1)
(+2)

FIG.3

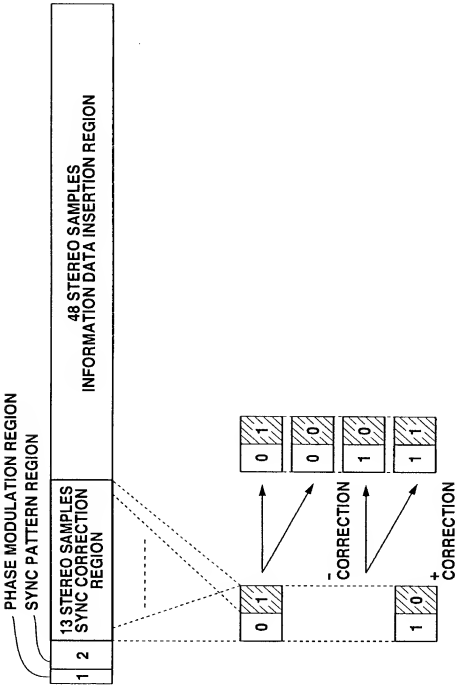
PHASE MODULATION REGION
SYNC PATTERN REGION
1
2
13 STEREO SAMPLES
SYNC CORRECTION
REGION
48 STEREO SAMPLES
INFORMATION DATA INSERTION REGION
0 1
0 0
1 0
1 1
- CORRECTION
+ CORRECTION
0 1
1 0

FIG.4

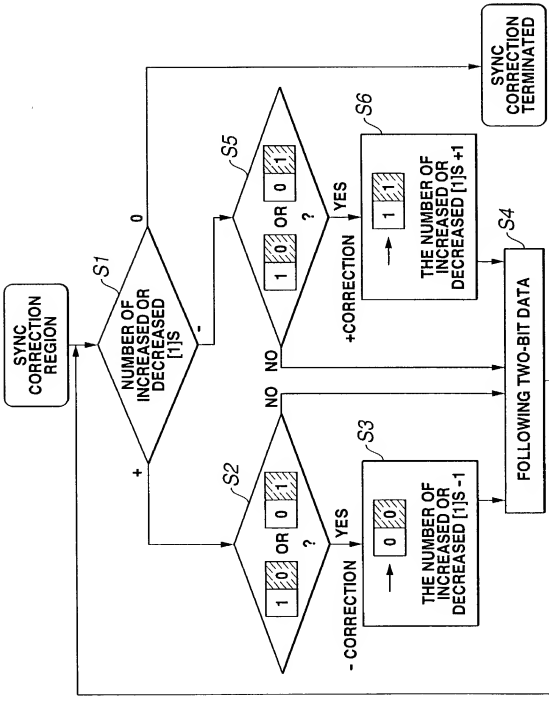
SYNC CORRECTION REGION
S1
NUMBER OF INCREASED OR DECREASED [1]S
+
-
0
S2
1 0 OR 0 1 ?
YES
NO
- CORRECTION
S3
0 0
THE NUMBER OF INCREASED OR DECREASED [1]S -1
S5
1 0 OR 0 1 ?
YES
NO
+CORRECTION
S6
1 1
THE NUMBER OF INCREASED OR DECREASED [1]S +1
S4
FOLLOWING TWO-BIT DATA
SYNC CORRECTION TERMINATED

FIG.5

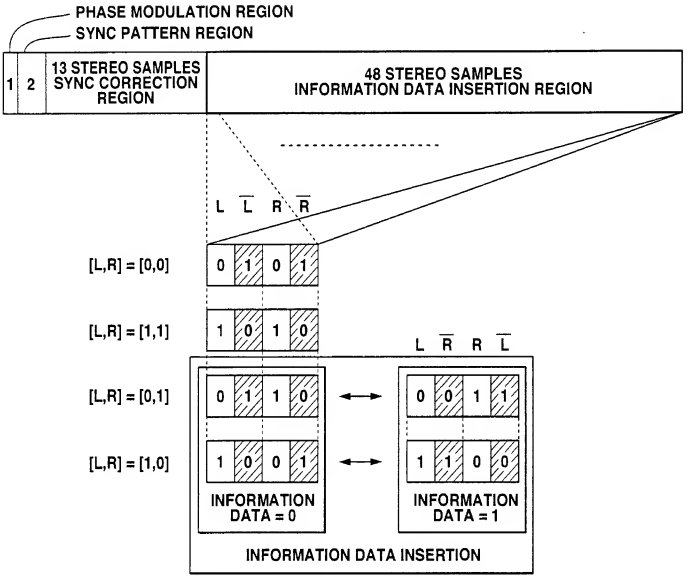

FIG.6

10088179 10/088179

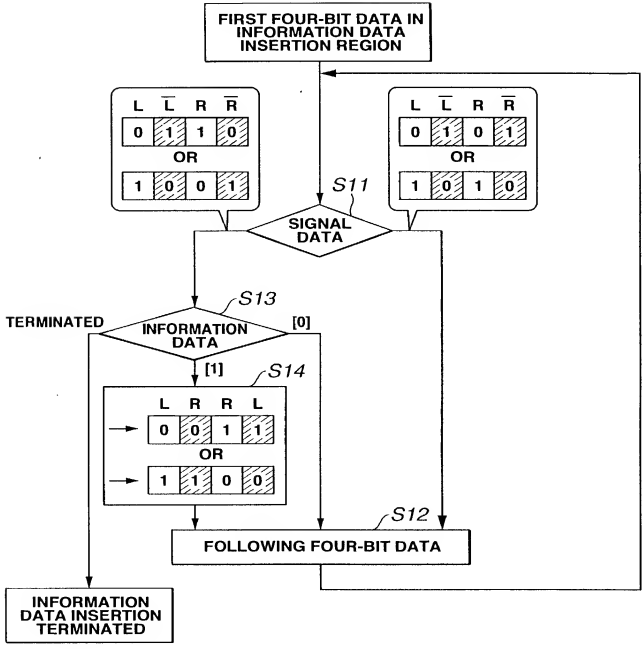
FIRST FOUR-BIT DATA IN INFORMATION DATA INSERTION REGION
L L̄ R R̄
0 1 1 0
OR
1 0 0 1
L L̄ R R̄
0 1 0 1
OR
1 0 1 0
S11
SIGNAL DATA
S13
TERMINATED
INFORMATION DATA
[0]
[1]
S14
L R R L
0 0 1 1
OR
1 1 0 0
S12
FOLLOWING FOUR-BIT DATA
INFORMATION DATA INSERTION TERMINATED

FIG.7

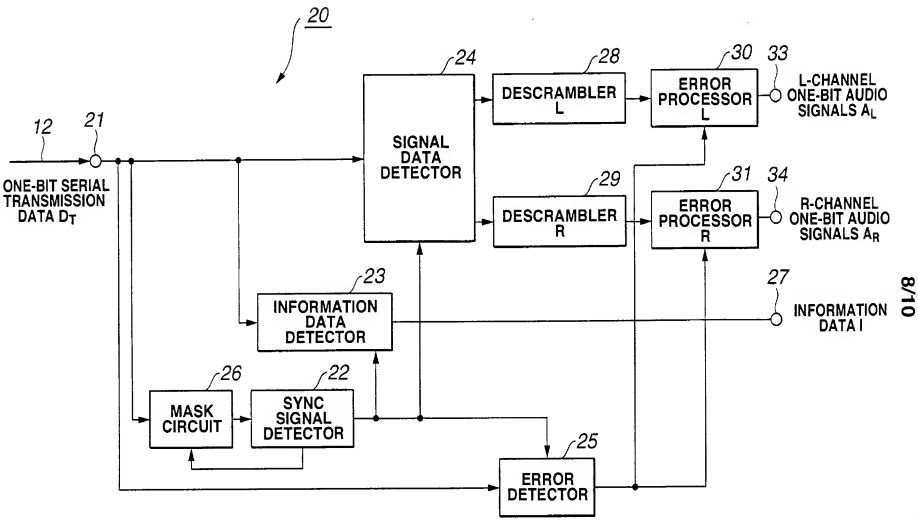

FIG.8

EP 0 718 979 A2

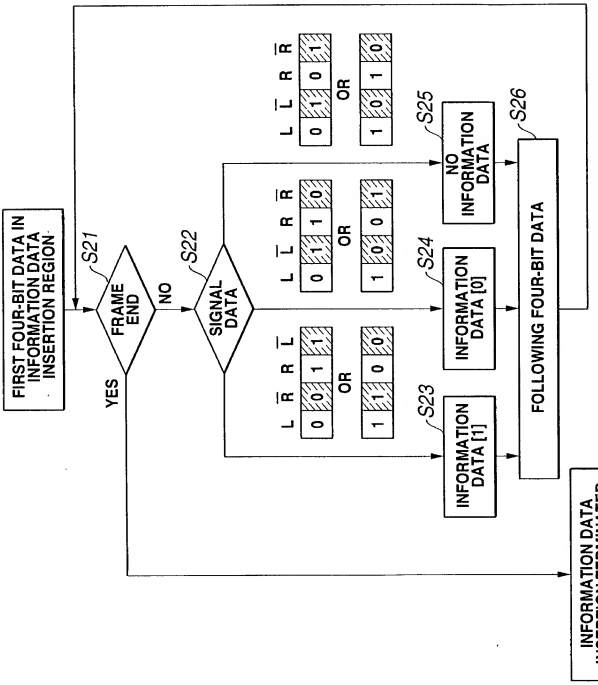
FIRST FOUR-BIT DATA IN INFORMATION DATA INSERTION REGION
S21
FRAME END
YES
NO
S22
SIGNAL DATA
L R̄ R L̄
0 0 1 1
OR
1 1 0 0
L L̄ R R̄
0 1 1 0
OR
1 0 0 1
L L̄ R R̄
0 1 0 1
OR
1 0 1 0
S23
INFORMATION DATA [1]
S24
INFORMATION DATA [0]
S25
NO INFORMATION DATA
S26
FOLLOWING FOUR-BIT DATA
INFORMATION DATA INSERTION TERMINATED

FIG.9

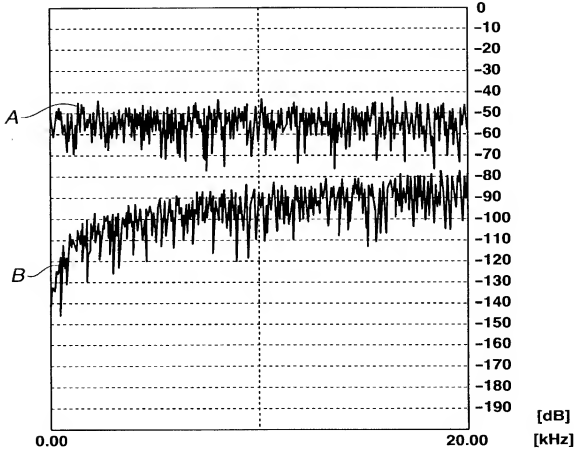
A
B
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
-150
-160
-170
-180
-190
[dB]
0.00
20.00
[kHz]

FIG.10